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ABSTRACT

In an era of ever-shrinking dollars for education and especially for educational research, one must ask the question, "Does the proposed research add value to agricultural education?" Although it may not be possible to answer the question completely, a framework can be developed within which the answer can be pondered. Researchers, therefore, should contemplate seven key points: (1) understand the concept of value added; (2) be prepared to define the benefits; (3) calculate the costs; (4) focus on the elements that can be influenced; (5) make research in agricultural education more programmatic; (6) invite analysis and synthesis; and (7) do research on the cutting edge. Finally, when any research effort is contemplated, the researcher should ask the question, "So what?" Eventually, the research will begin to take on a value that the public can perceive and resources to continue it will be made available. (KC)

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DID THE VALUE OF EDUCATION IN AGRICULTURE GO UP TODAY?

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In today's society, marked by shrinking public budgets and a new awareness of the need to obtain the highest value for the public resources we spend, the theme of this NAERM session is most fitting. Did we add value to agricultural education by what we have labored so long and hard to produce and report? While it is a simple question, it is perhaps one of the most difficult questions we will encounter in our professional careers. My task is not to answer the question, since I am no more knowledgeable than you about the correct response, but rather to develop a framework with which the answer to the question can be pondered.

THE VALUE ADDED CONCEPT

If there were ever a group who should understand the concept of "value added", it is a group whose professional career and life long work is associated with agriculture. It is in agriculture that the concept of value added is so easy to recognize. It begins on the farm or ranch where the inputs of land, labor , capital and management are converted to useful products that have utility in the market place and can be exchanged with others for goods and services that also have utility. Farmers and ranchers usually take cash in lieu of bartered goods and services. The objective of this exercise by the farmer or rancher is to convert resources that have little utility to others into things that are barterable or saleable. The ultimate goal is to produce goods and services that have greater value than the value of the resources used to produce them; thus the concept, " added value".

We can follow this concept all the way from the farm field to our own dining table, recognizing that any process along the way that does not add value to the product will for sure be temporary. Resources must add value or the resources will be ultimately diverted to some alternative use where value added is apparent.

It is easy to extend the concept of added value to the kind of educational exercises we have heard reported here today. It is easy to ask the same questions. Did the process, in this case research, add value? Or perhaps more important, did the process add more value than it cost? These are tough questions. We don't always know what the answer is and we frequently don't know how to find out.

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IMPROVING HUMAN CAPITAL

I am going to make the assumption that in the long run, the research that was reported here today had a singular global purpose: to improve the education of youth and adults. The measure of whether or not we added value by our efforts, can be related to the notion of improved human capital. Theadore Schultz, the famed economist, was recognized for his theories of human capital development. Much of his work centered on the idea that human capital had value, and that the value of the capital could be influenced by education. The more and better the educational input, the more valuable was the human capital. Schultz estimated the rates of return on investments in human capital through education. He estimated that elementary education returns about 35% on the investments made. Secondary education returns about 10% and college preparation returns 11%. Schultz made no attempt to divide the question into the value (or return) to expect on research as opposed to instruction and the other component parts of the educational enterprise. His work called attention to the idea that education had measurable value and that the concept of value added could be applied to a diverse enterprise like education as well as to the more confined enterprises like manufacturing and agricultural pursuits.

Davie, operating on the same premise that eduction had a desirable lifetime effect on earnings, added another dimension to the argument for improving human capital by examining the cost and benefits of additional schooling. Davie was concerned not only that education added value, but that the costs of obtaining it were less than the benefits. Davie introduced the idea of discounting benefits to current values recognizing that benefits of education engaged in today may not be fully manifested until some future time. This concept of thinking about future benefit is an important one when we consider the question of the added value of educational research. There is high probability that the benefits will not be immediately apparent, and when they do begin to accrue, they will accrue over a long period of time. Some understanding of the concept of "present value" will be useful in assisting us in choosing from among alternative research choices where the immediacy of payoff is dissimilar.

Personally, I cannot cite recent educational literature that may attempt to verify the work of Schultz. Nor am I familiar with research that attempts to place a value on the contributions of educational research to the improvement of human capital. If there are those who are, I hope that you will enlighten us during the discussion following this presentation. I have, however, seen the reports in my state of the agricultural research community where they have attempted to verify the effects that agricultural research has had on the value of farm productivity. Perhaps you have seen similar reports in your own localities. It is perhaps less difficult to trace the effects of research on cows, sows, plows and things that grow in the ground than it is to trace the effects of research on the implementation of educational practice.

MEASURING THE EDUCATIONAL BENEFIT

It could well be that we don't know if we have added value by the research we have completed and reported, because we don't know how to measure the benefit. If,however, we keep in mind that the purpose of what we do is to improve the educational enterprise, then we may gain some insight as to how benefit could be measured, even if to date we have not attempted to do so. It would be a good exercise to revisit each of the research papers presented here today and ask a simple question; "So what?" How do you anticipate educational practice and the educational enterprise would or could be improved because of the information you have discovered and reported?

I read each of the papers that were presented here today looking for two things: 1) What the author or authors claimed the significance of the paper to be as it related to educational practice or knowledge about the profession and 2) The conclusions or recommendations the authors drew that had to do with improving the educational enterprise.

Every researcher who delivered a paper here today should re-examine his or her work to determine if these points were adequately addressed. My personal assessment is that , with a few exceptions, they were not. Few of the papers stated the effect the research would or could have on education. When benefits were addressed, they were aimed more at process than at the ultimate value in changing practice. Authors used terms like "beneficial" (In what way and for whom?), "learn more" (What and in what way does it improve education?) , "identify relationships" (How are the relationships related to improvements in the educational enterprise?), and other broad terms and concepts that did not describe the ultimate benefit the research may have.

There were some exceptions. I recall specifically the benefit described in one of the Texas papers on safety (Lawver,1992). The author said " The ultimate benefit of this research and subsequent efforts will be a safer learning environment for children enrolled in agricultural science programs in Texas". He went on to say, "If like Virginia teachers, Texas teachers average five accidents per year we can conservatively estimate a cost of $711,500 if those accidents average $100 each". The point is that the author had in mind what the benefit of the research would be and even was willing to hazard a guess as to what the economic value of the accidents the program was designed to prevent might be, based upon research done in other agricultural programs.

Perhaps the fault is ours- yours and mine- and not the fault of the authors of the studies reviewed here today. If you examined the outline suggested for reporting the studies, you would find that making an assessment of how the study would impact upon educational practice was not highlighted. I suggest we change the outline in subsequent sessions of NAERM. It should be more evident that the author is encouraged to assess the value the research has added to education, or at least has been stimulated to think about the significance of his/her research in the broader scheme of educational practice. We should recognize that by doing so, we will expect some papers to fail the test.

MEASURING THE COSTS

It would be nice, at least once in awhile, to get some notion of what research costs. It does little good to get really excited about the benefit side of the equation if we ignore the costs. The concept of "value added" assumes that the costs have been covered and usually that some value over and above the costs has been produced; the concept of profit! But before we get too enthused about profit, we had better be willing to calculate costs. I wonder if anyone in this audience could tell me what it cost to conduct the research they reported on here today? I would not be surprised if you could not, since we rarely examine the cost side of the equation either. When we do we are more likely to add up the out- of-pocket costs such as postage, paper and pencils and forget the real costs of professional time and the opportunity costs of engaging in research as opposed to engaging in some alternative benefit producing educational endeavor.

Just as I would suggest we need to examine the potential benefit of the research activity, we need to examine the costs. Perhaps if we developed a proforma budget for every research activity we contemplated,we would become more adept at determining actual research costs and would begin to think of the costs in relationship to potential benefits.

Those of you who engage in grant writing are used to establishing budgets, (even if they sometimes contain a fair amount of smoke!).If you are just starting in this business, I suggest you get used to the idea of determining the potential costs of the research you intend to conduct, including the value of your time in its most productive alternative use.--especially when you are going to conduct the study without the benefit of external funds that augment the meager resources most of us have to work with in our departments. Making the most of our resources is an important responsibility. There is some research that will have a higher pay-off than other research. We have to be able to cost it out.

THE HIGH COST OF IGNORANCE

You should not construe what I have said about the high value of knowing about benefits and costs to imply that we should instead choose ignorance if it is not possible to precisely define the benefits and costs . Ignorance is our most expensive condition! We need to recognize the power of knowledge, even when it is imperfect, in improving the human circumstance. All the more reason to focus on the benefits and the significance of our research! Have we added to knowledge or are we still as ignorant as we were before?

We don't know what the cost of being uninformed is. What is the cost, for example, of using teaching method A when students learn best by using teaching methods B,C,and D? What is the cost of requiring study in disciplines A,B and C when the goals of society are best met by requiring study in disciplines A,B and D? We could go on forever asking the simple

question of" What is the cost of not knowing --------?". All we know is that the cost can be high.

FOCUSING ON THE THINGS WE CAN INFLUENCE

I am always amazed at our propensity to be drawn to the things we cannot change or influence. We do it all the time! I am as guilty as anyone else in being almost mesmerized by the ability to define our samples and sub-samples and research respondents in the finest detail of demographic and physical characteristics. It is as if we possessed some magical power to make old people young, short people tall, city dwellers country dwellers, males females and smart people dumb. While these demographic and physical characteristics help to define the group or groups with which we are working, little is to be gained by testing if there are significant differences between or among groups in these characteristics when we have not thought about the changes in practice that we would recommend should differences be found. Just for arguments sake say you found a significant difference in age between two comparison groups. It adds little to the value of the research to simply point out that there is a significant difference. What is the consequence of the difference? Does it translate into a different teaching/learning system? Does is suggest some modification in treatment to accommodate the discovered difference? Does it provide clues for the development and delivery of a certain kind of curriculum? More often than not, there is no suggestion of how to differentiate the treatment because we are now knowledgeable about the group age. We fail frequently to answer the "So What?" question after determining that differences exist.

I suspect we will continue to define and test differences in groups and individuals using demographic and physical characteristics. But we might add more value to the research if we focused more attention on the things we could change or influence and spent less time on those attributes we cannot manage. I challenge each of us to ask the " So What?" question every time we report a fact or finding. If we cannot explain to others why knowing a fact or finding is important, then maybe it isn't.

FOCUSING ON A THEME

The value of our research in Agricultural Education may be seriously diminished by our inability to establish a programmatic agenda for research. If you examine the papers delivered at this conference, you will conclude that we are not very focused on the kind of things we might consider to be of high importance to the profession.

Of the thirty-six papers presented at this conference, 13 of them had no relationship to any other paper presented. To me that suggests that as a profession we have not been very clear on defining the major themes around which our research should focus. If we are to develop a data base on an issue or topic that is comprehensive enough so that the knowledge we gain may be forged into some desirable changes in educational practice , we need to pay more attention to a thematic approach to research.

To illustrate, examine the themes for this conference and the number of papers that were related to the theme. You would observe the following:

Theme	Number of Papers
Middle School	4
Safety	4
Student achievement	4
Agriscience	4
Extension education	3
Technology	3
Job satisfaction	3
Student teaching	2
First year teachers	2
SAE	2
Miscellaneous	13

I recognize that individual researchers may have developed themes around which their research is focused. But we usually have the privilege of presenting research studies only one at a time. The program or theme you may be developing is not very evident at a conference like this. I suggest, however, that in matters that are really important to the agricultural education enterprise, we cannot wait out your lifetime of research to put it all together into something that will affect educational practice. We need to work together to compile a knowledge base that will provide more immediate guidance. We need partners. We need a "grand plan" for some topics so we can divide up the tasks, avoid needless repetition of things that do not need to be replicated, and shorten the time it takes to have viable recommendations for action.

It would be refreshing to have a matrix of needed research studies identified to address a particular problem and find that there was a researcher or team working on each cell of the matrix. At this very conference next year we could hear how the pieces of the puzzle have been put into place so a picture of educational improvement has emerged!

Perhaps what we need to do is to establish more cooperating working groups like the North Central Regional NCR 158 committee on research on adult education. One of the most important accomplishments of that group of researchers was to develop a vision of what research needs to be done in adult education. The themes and sub-themes that are part of the visionary statement developed by that committee serve as the organizers around which adult education in agriculture researchers can focus. At this AVA conference there is another group that will attempt to organize a similar committee to focus their attention on the broad topic of rural education. Their first task will no doubt deal with the establishment of an agenda around which research can be organized.
Others should examine this or similar mechanisms to facilitate the establishment of working groups who have high interest is specific, significant, educational problems. Programs of research, not episodes, will advance our knowledge more rapidly.

GIVING RESEARCH VALUE

Stimulating agricultural research to be more programmatic rather than episodic would be a great step forward, but it will not be enough. We need the skills of analysts and synthesizers to translate research studies into programs of action. We need to start reporting some of the analysis and synthesis of research at conferences such as this so we can begin to appreciate how the pieces of the puzzle fit into the plans for informing practice.We need to accept that activity as a legitimate contribution and responsibility for the research community. It would be my suspicion that had such a paper been proposed for this forum, it would have been turned down. If I am correct in that assumption, then we need to change our ways. How will we be able to assess the value we are adding to agricultural education if we cannot synthesize the related research studies into plans of action that can be publicly aired and vigorously debated?

WORKING THE CUTTING EDGE

Doing something new and different can be a dangerous move. It is more comfortable and safer to focus our research on the tried and proven aspects of education where there is less probability that we might fail to be able to report a favorable finding. I suggest we begin to live more dangerously. We have to work the cutting edge if we are to influence practice. You might examine each of the studies presented here today and ask " Was this study on the cutting edge?" Was it addressing new problems or seeking answers to new questions that would shape education in the decades ahead? I think you could identify several of the themes of this conference as being on, or at least very close, to the cutting edge. The focus on agriscience is no doubt a response to the questions of what the character of the agricultural education program at the secondary level should be like. Attention to technology follows the notion that the delivery of education may need to change and the "New Schools" of America will depend a great deal on our ability to maximize our use of appropriate technology in the teaching/learning paradigm. These "what" and "how" questions are important ones for the decades ahead.

Equally pertinent is attention to "who". You have heard four studies of agricultural instruction in the middle school. That is certainly a shift in our identification of a target audience. It suggests to me that our own effort at the University of Minnesota under the direction of Dr. Roland Peterson, to establish a middle school in our own Vocational Technical Education building is timely. (It also raises an interesting question of what a Minneapolis middle school is doing in St. Paul, but that's another story!)

If you have not faced by now, you soon will face the dilemma of rising entrance standards in colleges and universities. Most of us have faced that fight unarmed. Some of the studies at this conference that addressed the measurement of student achievement will provide ammunition to carry forward the argument that success in college and success in life is not necessarily tied to completion of courses in subjects X,Y, and Z. This is a cutting edge concern that some of you have chosen to address.

There are other studies from this conference that would be considered to be on the agricultural education research frontier. You may have your own notion of what they are.

My only suggestion is that we won't make many points in the research community or we won't be able to talk very much about the value we have added if we do not devote a goodly share of our effort to the problems and questions that are on the cutting edge of knowledge and practice.

ADDING IT UP

If you have paid any attention to my rambling this afternoon you may have caught several key points I was trying to convey. To make some sense from this activity, and to aid in organizing what you may remember from this discourse, let me summarize in a few brief statements how I think we may respond to the question " Did the value of education in agriculture go up today?"

Here are some key points to ponder:

- Understand the concept of value added

In simple terms, education should be better off in some measurable way than it was before we engaged in and reported our research.

- Be prepared to define the benefits

Improving process or just "Knowing" has to be translated into some improvement in educational practice and the ultimate improvement of what happens to youth and adults when they engage in what we term education.

- Calculate the costs

The whole concept of value added has to take into account a positive benefit cost benefit ratio. Calculating costs is an important part of the benefit cost formula. Considering opportunity costs of professional time is going to take a great deal of serious thought.

- Focus on the elements we can influence.

Unless you possess some magical power to change the unchangeable, lets direct our attention to those things we can influence. When we must deal with attributes we cannot change, then be direct in telling us how educational practice must be modified to accommodate the unchangeable differences you encountered.

- Make research in agricultural education more programmatic.

To really have a collective research enterprise that has value, we must present a program of research that provides a complete enough picture to be woven into a plan of action and implementation. That is going to take many of us working on the same problems or questions in some coordinated way. We cannot wait the lifetime it will take for individual researchers to solve all of the problems of their personal research puzzle. We must collaborate.

- We need to invite the analysts and synthesizers to our party.

Some people have a special skill of putting the pieces from a variety of research efforts together into a plan that can be aired and debated. They are valuable parts of the research community. We need to invite them to participate with us, if we are not they, and we need to recognize the value of their contributions.

- We need to risk being on the cutting edge

If fools rush in where angles fear to tread, then on occasion we have to be fools. The most valuable research will be that which points a new way. It will be on the cutting edge-- a dangerous and risky place to operate, but an essential place if we are to add value to agricultural education. The challenge will be to balance the research that charts the unknown with the research that reinforces and solidifies our current knowledge of the educational enterprise.

A FINAL THOUGHT

I have not answered the question to which I was assigned. I can't. I don't have the knowledge or wisdom it takes to answer it. But I can think about it. I'm asking you to think about it too. Each and every time you contemplate a new research effort, ask yourself the simple question," So what?". Eventually we will begin to shape answers with which our publics, peers and colleagues will be impressed, and which will insure that the vital resources needed to continue research in educational endeavors will be made available.

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